

CLAIMS

I claim:

1. A bat comprising:
 - a bat having a hitting portion and a handle portion;
 - a tubular biaxial braided overlay member laminated to the handle portion of said bat;
 - said overlay member comprising a hybrid of carbon fibers and aramid fibers;
 - said laminated overlay member having shock absorbing properties.

2. A bat as set forth in claim 1 wherein the lamination of said overlay member to said handle portion of said bat comprises the steps of:
 - applying a thermosetting material to said overlay and said handle portion so that said overlay is substantially saturated with said thermosetting material;
 - wrapping at least a portion of the bat with a suitable material to compress the overlay to the bat handle; and
 - heating the thermosetting material under appropriate conditions to accomplish at least partial setting of the thermosetting material.

3. A bat as set forth in claim 1 wherein said bat is a baseball bat.

4. A bat as set forth in claim 1 wherein said bat is a softball bat.

5. A bat as set forth in claim 1 wherein said laminated overlay member reduces handle vibration by approximately sixty percent when compared with a bat without any grip.

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6. A bat as set forth in claim 1 wherein the overlay member is formed with a substantially equal number of carbon fibers and aramid fibers.
 7. A bat as set forth in claim 1 wherein the overlay member is formed with alternating strands of carbon fibers and aramid fibers.
 8. A bat as set forth in claim 1 wherein the overlay member is formed with a plurality of strands of carbon fiber alternating with a plurality of strands of aramid fibers.
 9. A bat as set forth in claim 1 wherein the overlay member is laminated with a thermosetting resin matrix to the handle portion of the bat.
 10. A bat as set forth in claim 9 wherein said thermosetting resin matrix is an epoxy system.
 11. A bat as set forth in claim 9 wherein said thermosetting resin matrix is an epoxy-amine system.
 12. A method of manufacturing a shock absorbing bat comprising:
 - slipping a tubular biaxial overlay member comprising a hybrid of carbon fibers and aramid fibers onto a handle portion of a bat;
 - applying a thermosetting material to said overlay and said handle portion so that said overlay is substantially saturated with said thermosetting material;
 - wrapping at least a portion of the bat with a suitable wrapping material to compress the

overlay to the bat handle; and

heating the thermosetting material under appropriate conditions to accomplish at least partial setting of the thermosetting material.

13. A method of manufacturing a shock absorbing bat as set forth in claim 12 wherein said overlay is compressed to said bat handle under a pressure of at least approximately 150 pounds per square inch.

14. A method of manufacturing a shock absorbing bat as set forth in claim 12 wherein said suitable wrapping material comprises cellophane shrink wrap.

15. A method of manufacturing a shock absorbing bat as set forth in claim 14 wherein said overlay is compressed to said bat handle under a pressure of at least approximately 150 pounds per square inch.

16. A bat as set forth in claim 2 wherein said laminated overlay member reduces handle vibration by approximately sixty percent when compared with a bat without any grip.

17. A bat as set forth in claim 2 wherein said overlay is compressed to said bat handle under a pressure of at least approximately 150 pounds per square inch.

18. A bat as set forth in claim 2 wherein said suitable wrapping material comprises cellophane shrink wrap.

19. A bat as set forth in claim 18 wherein said overlay is compressed to said bat handle under a pressure of at least approximately 150 pounds per square inch.

20. A bat as set forth in claim 19 wherein said laminated overlay member reduces handle vibration by approximately sixty percent when compared with a bat without any grip.

21. A bat as set forth in claim 2 wherein the overlay member is formed with a substantially equal number of carbon fibers and aramid fibers.

22. A bat as set forth in claim 2 wherein the overlay member is formed with alternating strands of carbon fibers and aramid fibers.

23. A bat as set forth in claim 2 wherein the overlay member is formed with a plurality of strands of carbon fiber alternating with a plurality of strands of aramid fibers.